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EXAMINER	
BHATTACHARYA, SAM	

ART UNIT	PAPER NUMBER
2687	

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/622,468	SALONAHO ET AL.	
	Examiner	Art Unit	
	Sam Bhattacharya	2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *18 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rulé 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. By this Office action, the final rejection dated 2/24/2004 is withdrawn.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-2, 4-6, 11, 21, 23, 25-29 and 31-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cullen (International Publication Number WO 95/04419) in view of Kondo et al. (US 6,442,150 B1).

As to claims 1 and 31, the Cullen reference discloses a method of measurement reporting in a telecommunication system ("a communications system comprises a plurality of measuring means for measuring properties of the traffic carried by the communication system" (page 2, lines 13-16), Figure 1), comprising mobile stations ("1" in Figure 1) and a network comprising base stations ("2a, 2b, 2c" in Figure 1), wherein decisions upon establishing or canceling a link between a mobile station and a base station are made in the network on the basis of measurement reports sent from the mobile station to the network ("An embodiment of the invention, shown in Figures 1 and 2, is a communication system having means for collecting and processing data on the quality of bearer links in the system. In this embodiment the system is a mobile radio telecommunications network. The collected data in this particular example is to be used in the

handover process of the mobile radio network." (page 3, lines 26-32)), the method comprises the steps of:

defining at least two independent measurement report triggering conditions ("the process control unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance eg BER, C/I, received power level or bit rate" (page 4, lines 28-30)),

monitoring at the mobile station properties of a plurality of radio signals received from respective base stations ("4d" in Figure 1, "the process control unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance e.g. BER, C/I, received power level or bit rate" (page 4, lines 28-30)).

Cullen does not disclose generating a measurement report comprising information about the monitored radio signals at the mobile station when at least one of the triggering conditions is met and transmitting the generated measurement report to the network.

However, Kondo et al. disclose generation and transmission of a report when at least one triggering condition is met (signal strength from a base station exceeds an "add" threshold" or drops below a "drop" threshold). See col. 4, lines 18-32 and col. 5, lines 1-12. Moreover, the measurement report is generated when any one of the triggering conditions (either the "add" or "drop" threshold) has been met.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen to generate and transmit a measurement report based on a trigger condition, as taught by Kondo et al., so that the system can decide whether to continue communications with the current base station or handover communications to a candidate list of base stations.

As to claim 2, the Cullen reference discloses, in accordance with all the features of claim 1, that the activity of at least one of the triggering conditions is defined by the network ("the process control unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance eg BER, C/I, received power level or bit rate" (page 4, lines 28-30)).

As to claim 4, the Cullen reference discloses a method according to claim 1, characterized in that at least one of the trigger conditions is a threshold for a radio signal parameter or a function thereof ("although the methods of measurement may differ, the properties to be measured, such as bit error rate (BER), C/I, received power level, or bit rate are similar for each unit." (page 4, lines 19-22)).

As to claim 5, the Cullen reference discloses a method according to claim 4, characterized in that the radio signal parameter is the received power level of the signal or a function thereof ("although the methods of measurement may differ, the properties to be measured, such as bit error rate (BER), C/I, received power level, or bit rate are similar for each unit." (page 4, lines 19-22)).

As to claim 6, the Cullen reference discloses a method according to claim 4, characterized in that the radio signal parameter is the interference in the received radio signal (C/I) or a function thereof ("although the methods of measurement may differ, the properties to be measured, such as bit error rate (BER), C/I (Carrier-to-Interference Ratio), received power level, or bit rate are similar for each unit." (page 4, lines 19-22)).

As to claim 11, the Cullen reference discloses that the trigger condition comprises a threshold for the change of a radio parameter or a function thereof ("the external interface module 12 returns the results of the measurement process to the application C/ (Handover

Control in this case) in a standard format (in this case BER and the change in BER (CBER))." (page 11, lines 7-10)).

As to claim 21, the Cullen reference discloses a method according to claim 1, characterized in that the network informs the mobile station what information to include in the measurement report, and the mobile station includes this information in the measurement report (see page 9, line 20 to page 10, line 6).

As to claim 23, the Cullen reference discloses that the number of radio signals to be reported is given by the network ("the measurement units 4a, 4b, 4c, 4d can be configured to make different measurements according to instructions received from the processing unit 5" (page 5, lines 10-12). "The parameter to be measured (e.g. bit error ratio, C/I, RSSI) can be selected" (page 5, lines 17-18)).

As to claim 25, the Cullen reference discloses a method according to claim 21, characterized in that the measurement report comprises a value for the carrier to interference ratio of a reported signal or a function thereof ("although the methods of measurement may differ, the properties to be measured, such as bit error rate (BER), C/I (Carrier-to-Interference Ratio), received power level, or bit rate are similar for each unit." (page 4, lines 19-22)).

As to claims 26 and 28, the Cullen reference further discloses a telecommunication network for a telecommunication system and, respectively, a network element for a telecommunication network comprising mobile stations ("1" in Figure 1) and a network comprising base stations ("2a, 2b, 2c" in Figure 1), in which system the mobile stations monitor radio signals sent by the base stations ("4d" in Figure 1, "the process control unit 5 instructs the

measurement units 4a, 4b, 4c, 4d to take measurements of link performance e.g. BER, C/I, received power level or bit rate" (page 4, lines 28-30)), comprising

a determining means for determining a plurality of independent trigger conditions for triggering the transmission of a measurement report from the mobile station ("this message is passed from the handover control C′ to the external interface 12 and has fields specifying: the parameter(s) to be measured (in this case the bit error ratio BER)" (page 9, lines 21-24) and

sending means responsive to the determining means for sending the determined trigger conditions to a mobile station ("the instruct and receive module 10, then sends a report request message 106 in a format that will be recognized by the remote measurement functionality 4. In this case the format will be very simple as the measurement functionality 4 is assumed to be only 'on' or 'off', measuring only BER and then returning it immediately in a Report response message 107" (page 10, line 29-35)).

As to claims 27 and 33, the Cullen reference further discloses a telecommunication network for a telecommunication system and a network element for a telecommunication network comprising mobile stations ("1" in Figure 1) and a network comprising base stations ("2a, 2b, 2c" in Figure 1), in which system the mobile stations monitor radio signals sent by the base stations ("4d" in Figure 1, "the process control unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance e.g. BER, C/I, received power level or bit rate" (page 4, lines 28-30)), comprising

a determining means for determining a plurality of independent measurement report triggering conditions for a mobile station, the triggering conditions being determined to be used together with monitored properties of radio signals corresponding to different base stations ("this

message is passed from the handover control C' to the external interface 12 and has fields specifying: the parameter(s) to be measured (in this case the bit error ratio BER)" (page 9, lines 21-24) and

sending means responsive to the determining means for sending the determined trigger conditions to a mobile station ("the instruct and receive module 10, then sends a report request message 106 in a format that will be recognized by the remote measurement functionality 4. In this case the format will be very simple as the measurement functionality 4 is assumed to be only 'on' or 'off', measuring only BER and then returning it immediately in a Report response message 107" (page 10, line 29-35)).

As to claims 29 and 34, the Cullen reference discloses a mobile station for a telecommunication system (Figure 1), comprising mobile stations ("1" in Figure 1) and a network comprising base stations ("2a, 2b, 2c" in Figure 1), and the mobile stations monitor radio signals sent by the base station ("a mobile unit 1 and three base stations 2a, 2b, 2c each having measuring equipment 4a, 4b, 4c, 4d for monitoring the quality of respective bearer links, 3a, 3b, 3c, 3d." (page 3, lines 35-37)), characterized in that the mobile station has

receiving means ("3d" in Figure 1) for receiving trigger conditions from the network for triggering the transmission of a measurement report ("the bearer links 3b, 3d are actual links with the mobile unit 1 currently in operation and carrying traffic." (page 4, lines 1-3)),

monitoring means ("4d" in Figure 1) for monitoring the radio signals,

a plurality verifying means ("4d" in Figure 1) which is responsive to the receiving means and for the monitoring means and which has the functionality of specifying whether the trigger conditions for sending a measurement report of a specified type are met ("the process control

unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance e.g. BER, C/I, received power level or bit rate" (page 4, lines 28-30)),

a plurality of report means ("4d" in Figure 1) responsive to the verifying means for establishing a measurement report ("the instruct and receive module 10, then sends a report request message 106 in a format that will be recognized by the remote measurement functionality 4. In this case the format will be very simple as the measurement functionality 4 is assumed to be only 'on' or 'off', measuring only BER and then returning it immediately in a Report response message 107" (page 10, lines 29-35)), and

sending means ("3d" in Figure 1) responsive to the report means for sending a measurement report to the network ("the bearer links 3b, 3d are actual links with the mobile unit 1 currently in operation and carrying traffic." (page 4, lines 1-3)).

As to claims 32 and 35, the Cullen reference discloses a telecommunication network according to claim 26 characterized in that the determining means are further arranged to define the activity of respective trigger conditions (page 9, lines 20-34), and the sending means are arranged to send information about the activity state to the mobile stations ("this message passes from the external interface 12 to the handover control C/ and contains result parameters from the measurement algorithm in the processing block in the form specified in the request message" (page 10, lines 1-4)).

As to claim 36, Cullen discloses that the receiving means has been configured to receive base station specific offset values, and the verifying means have been arranged to use the base station specific offset values in verifying whether a triggering condition has been met. See page 10, lines 14-29.

As to claim 37, Cullen discloses a mobile station for a telecommunication system (Figure 1) that includes mobile stations 1 and a network comprising base stations, in which system decisions on establishing or canceling a link between a mobile station and a base station 2a are made in the network on the basis of measurement reports sent from the mobile station to the network ("a mobile unit 1 and three base stations 2a, 2b, 2c each having measuring equipment 4a, 4b, 4c, 4d for monitoring the quality of respective bearer links, 3a, 3b, 3c, 3d." (page 3, lines 35-37)), wherein the mobile station has receiving means for receiving parameters from the network for triggering the transmission of a measurement report and for receiving radio signals from a plurality of base stations ("the bearer links 3b, 3d are actual links with the mobile unit 1 currently in operation and carrying traffic." (page 4, lines 1-3)), monitoring means 4d for monitoring properties of a plurality of radio signals received from respective base stations, verifying means 4d for calculating link quality measures for the base stations with an equation using the monitored properties of the radio signals and the received parameters, and the verifying means being configured to determine using the calculated link quality measures whether a trigger condition for sending a measurement report is met ("the process control unit 5 instructs the measurement units 4a, 4b, 4c, 4d to take measurements of link performance e.g. BER, CI, received power level or bit rate" (page 4, lines 28-30)).

4. Claims 3, 7-8, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/04419 to Cullen in view of Kondo et al. (US 6,442,150 B1), and further in view of Andersson et al. (U.S. Patent 5,594,949).

As to claim 3, Cullen-Kondo discloses a method according to claim 1. However, Cullen-Kondo does not disclose that the method further comprises a step of resetting a timer in connection with the step of transmitting a measurement report, and at least one of the trigger conditions comprises a condition for the value of the timer.

The Andersson reference discloses a step of resetting a timer in connection with the step of transmitting a measurement report, and at least one of the trigger conditions comprises a condition for the value of the timer ("the mobile stations can be instructed by the system to measure each listed frequency a predetermined number of times, e.g., 4 times, with a predetermined spacing between measurements, e.g., 20 ms. A resultant average of either signal strength or error rate can then be calculated." (Col. 6, lines 45-48)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to comprise a step of resetting a timer in connection with the step of transmitting a measurement report, and at least one of the trigger conditions comprises a condition for the value of the timer. One would have been motivated to make such a modification in view of the suggestion in Andersson to get periodic measurement reports from the mobile station.

As to claim 7, as cited in claim 6, Cullen-Kondo discloses a method in a network using CDMA air interface in which the connections are separated using different spreading codes and a measurement report trigger condition can be C/I (Carrier-to-Interference Ratio). However, the Cullen reference does not explicitly disclose that the value for the interference is an estimate for the interference power made before the signal is correlated with the spreading code used in the connection.

The Andersson reference discloses the value for the interference is an estimate for the interference power made before the signal is correlated with the spreading code used in the connection ("the typical or average interference of the downlink channels are used in determining an optimal channel for a new connection and the transmission loss, or the received carrier in the reporting mobiles, is not regarded" (Col. 5, lines 18-22)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to use the value for the interference from an estimate for the interference power made before the signal is correlated with the spreading code used in the connection as taught by Andersson in order to quickly and easily compute the C/I value and determine an optimal channel for a new connection without having to wait for the signal correlation.

As to claim 8, as cited in claim 6, the Cullen reference discloses a method in a network using CDMA air interface in which the connections are separated using different spreading codes and a measurement report trigger condition can be C/I (Carrier-to-Interference Ratio). However, the Cullen reference does not explicitly disclose that the value for the interference is an estimate for the interference power made after the signal has been correlated with the spreading code used in the connection.

The Andersson reference discloses the value for the interference is an estimate for the interference power made after the signal has been correlated with the spreading code used in the connection ("if such a correlation between interference and transmission loss exists, mobiles having, for example, a small transmission loss (i.e., mobiles close to the base) should report

interference information with smaller relative deviations. This characteristic can be used to lower the safety margin when using the estimated interference" (Col. 5, lines 37-42)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to use the value for the interference from an estimate for the interference power made after the signal has been correlated with the spreading code used in the connection as taught by Andersson in order to lower the safety margin that could permit selection of channels which would otherwise be deemed unacceptable.

As to claim 24, Cullen-Kondo discloses a method according to claim 21. However, Cullen-Kondo does not disclose that the measurement report comprises a value for the path loss for a reported signal or a function thereof.

The Andersson reference discloses that "if such a correlation between interference and transmission loss exists, mobiles having, for example, a small transmission loss (i.e., mobiles close to the base) should report interference information with smaller relative deviations" (Col. 5, lines 37-41). As interpreted by the examiner, a path loss value is an estimate of signal strength loss and functionally equivalent to a transmission loss as specified in Andersson.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to have the measurement report comprising a value for the path loss for a reported signal as taught by Andersson in order to measure more accurately the interference and thus, the carrier-to-interference ratio for determining a handoff.

5. Claims 9-10, 18-20, 22, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/04419 to Cullen in view of Kondo et al. (US 6,442,150 B1), and further in view of Blakeney, II et al. (U.S. Patent 5,267,261).

As to claim 9, Cullen-Kondo discloses a method according to claim 1 characterized with trigger conditions. However, Cullen-Kondo does not disclose that the trigger condition comprises a base station specific offset value.

The Blakeney, II reference discloses "the pilot signal as transmitted by each base station is of the same PN spreading code but with a different code phase offset" (Col. 6, lines 17-19).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to use the trigger condition that comprises a base station specific offset value as taught by Blakeney, II in order to have the trigger condition more applicable to the specified base station.

As to claim 10, the Blakeney, II reference further discloses that the "phase offset which allows the pilot signals to be distinguished from one another by the mobile station, resulting in a differentiation between base stations from which they originate" (Col. 6, lines 24-27). As interpreted by the examiner, the offset value is defined in the network (base stations) and dynamically varies from one base station to another.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Blakney, II as cited in claim 9 to have at least one of offset values dynamically defined by the network as further taught by Blakeney, II in order to utilize proper offset values associating with the various base stations that the mobile station communicates.

As to claim 18, the Blakeney, II reference discloses a method in that two different logical functions are such that when a base station is in the active set (base station A, Figure 9), a measurement report is not triggered by a radio signal of that base station for the same set of radio properties as would trigger the transmission of a measurement report when the base station is in the candidate set (base station C, Figure 9). "The mobile station detects a falling in signal strength of Active pilot A while also detecting a rise in signal strength of a no-Active Set pilot, pilot C, block 252. With the Active pilot A falling below the level T_DROP for the predetermined period of time along with the rising of pilot C above the threshold T_ADD, a pilot strength measurement message is generated and transmitted." (Col. 28, lines 9-16). As interpreted by the examiner, there are two different logical functions: one is to determine pilot signal falling below T_DROP and the other is to determine pilot signal rising above T_ADD, and thus two different trigger conditions.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo as cited in claim 1 to have two different logical functions such that when a base station is in the active set, a measurement report is not triggered by a radio signal of that base station for the same set of radio properties as would trigger the transmission of a measurement report when the base station is in the candidate set. One would have been motivated to make such a modification in view of the suggestion in Blakeney, II to have different trigger conditions for the same base station and not to have the same base station tracked in both sets.

As to claim 19, the Blakeney, II reference discloses that the method comprises a step of defining a logical function ("the diversity combiner circuitry contained within circuitry 48

adjusts the timing of the two stream of received signals into alignment and adds them together" (Col. 13, lines 55-58); Figure 2) for use when the number of base stations in the active set is equal to a predefined maximum number ("with respect to the Active Set, it is preferable that the mobile station be capable of supporting an Active Set size of at least six pilots." (Col. 24, lines 42-44)), and defining the first and second sets of trigger conditions (see Col. 9, lines 3-7) on the basis of the radio signal properties of the active base station having the worst signal conditions, and wherein a measurement report is triggered by a radio signal of a candidate base station causes that worst base station to be replaced by the candidate base station (see Col. 22, lines 15-56; Figure 6).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo as cited in claim 1 to comprise a step of defining a logical function for use when the number of base stations in the active set is equal to a predefined maximum number, and defining the first and second sets of trigger conditions on the basis of the radio signal properties of the active base station having the worst signal conditions, and wherein a measurement report is triggered by a radio signal of a candidate base station causes that worst base station to be replaced by the candidate base station. One would have been motivated to make such a modification in view of the suggestion in Blakeney, II to streamline the process of searching for pilots of the base stations in a handoff.

As to claim 20, the Blakeney, II reference further discloses that the maximum number is dynamically defined by the network ("the decision for placing a Candidate Set member into the Active Set is made by the system controller. However, there may be limits placed on the number of Active Set members." (Col. 22, lines 47-48, 52-53)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Blakeney, II as cited in claim 19 to have the maximum number dynamically defined by the network as further taught by Blakeney, II in order to flexibly maintain a complete and sufficient list of active base stations for quick handoff.

As to claim 22, Cullen-Kondo discloses a method according to claim 21 characterized in that the radio signals are ordered using a predefined condition ("the measurement units 4a, 4b, 4c, 4d can be configured to make different measurements according to instructions received from the processing unit 5. Such changes may be made dynamically e.g. depending on prevailing conditions, for example the type of signal" (page 5, lines 10-14). However, Cullen-Kondo does not disclose that in the measurement report sent from the mobile station, information about the properties of a predefined number of the best radio signals according to the condition are reported.

The Blakeney, II reference discloses that in the measurement report sent from the mobile station, information about the properties of a predefined number of the best radio signals according to the condition are reported ("in response to the Pilot Measurement Request Order the mobile station reports the current estimate of the pilot strengths of all the pilots in its Active Set and Candidate Set" (Col. 19, lines 13-16)).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to have in the measurement report sent from the mobile station, information about the properties of a predefined number of

the best radio signals according to the condition are reported, as taught by Blakeney, II, in order to decide quickly the best base station for a handoff.

As to claim 30, Cullen-Kondo discloses a mobile station according to claim 29. However, Cullen-Kondo did not disclose the verifying means are arranged to determine the states of each trigger condition and to combine the states according to the logical function, and the report means are arranged to establish a measurement report to be sent by the sending means in dependence upon the condition of the logical function.

The Blakeney, II reference discloses the verifying means are arranged to determine the states of each trigger condition and to combine the states according to the logical function, and the report means are arranged to establish a measurement report to be sent by the sending means in dependence upon the condition of the logical function. "The mobile station detects a falling in signal strength of Active pilot A while also detecting a rise in signal strength of a no-Active Set pilot, pilot C, block 252. With the Active pilot A falling below the level T_DROP for the predetermined period of time along with the rising of pilot C above the threshold T_ADD, a pilot strength measurement message is generated and transmitted." (Col. 28, lines 9-16). As interpreted by the examiner, the two trigger conditions: pilot A falling below the T_DROP, rising of pilot C rising above the threshold T_ADD, are logically "AND"ed as expressed in the word "along". Furthermore, it is inherently understood that with the mobile station sending the strength measurement message, there is a report means within the mobile station to establish a measurement report to be sent.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo as cited in claim 29 to have the

verifying means arranged to receive at least first and second different set of trigger conditions for uplink and downlink signals, and a logical function for combining these sets of trigger conditions, the verifying means arranged to determine the states of each trigger condition and to combine the states according to the logical function, and the report means arranged to establish a measurement report to be sent by the sending means in dependence upon the condition of the logical function. One would have been motivated to make such a modification in view of the suggestion in Blakeney, II to verify the trigger conditions for sending a measurement report.

6. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 95/04419 to Cullen in view of Kondo et al. (US 6,442,150 B1), and further in view of Muszynski (U.S. Patent 6,009,328).

As to claim 12, Cullen-Kondo discloses a method according to claim 1 characterized with trigger conditions. However, Cullen-Kondo does not disclose that a first set of trigger condition is defined for the radio signals in the uplink direction and a second set of trigger conditions is defined for the radio signals in the downlink direction, a logical function is defined for combining the first and the second set of trigger conditions, and at the mobile station, the state of each trigger condition is determined, the states combined using the logical function, and the measurement report is sent in dependence upon the condition of the logical function.

The Muszynski reference discloses a first set of trigger condition is defined for the radio signals in the uplink direction ("the BS measures periodically the received E_b/N_o value, indicative of the signal quality, from each MS CDMA uplink communication" (Col. 2, lines 44-46)) and a second set of trigger conditions is defined for the radio signals in the downlink

direction ("the transmission of pilot signals by all BSs as a downlink signal quality reference" (Col. 8, lines 65-66)), a logical function is defined for combining the first and the second set of trigger conditions, and at the mobile station, the state of each trigger condition is determined, the states combined using the logical function, and the measurement report is sent in dependence upon the condition of the logical function (see Col. 9, lines 16-59).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo to comprise:

a first set of trigger condition is defined for the radio signals in the uplink direction and a second set of trigger conditions is defined for the radio signals in the downlink direction,

a logical function is defined for combining the first and the second set of trigger conditions, and

at the mobile station, the state of each trigger condition is determined, the states combined using the logical function, and the measurement report is sent in dependence upon the condition of the logical function

One would have been motivated to make such a modification in view of the suggestion in Muszynski to create new trigger conditions for the measurement reporting from the mobile station.

As to claim 13, the Muszynski reference discloses a first set of trigger condition is defined for the radio signals in the uplink direction ("the BS measures periodically the received E_b/N_o value, indicative of the signal quality, from each MS CDMA uplink communication" (Col. 2, lines 44-46)) and a second set of trigger conditions is defined for the radio signals in the downlink direction ("the transmission of pilot signals by all BSs as a downlink signal quality

reference" (Col. 8, lines 65-66)). As interpreted by the examiner, that the first and second set of trigger conditions are defined by the network (base stations) and dynamically vary from one base station to another.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Muszynski as cited in claim 12 to have the first and second set of trigger conditions dynamically defined by the network as further taught by Muszynski in order to set proper trigger conditions associating with the various base stations that the mobile station communicates.

As to claim 14, the Muszynski reference discloses "the inter-MSC soft handoff with signal diversity combining is initiated when the MS 30 moves from the coverage area of the serving BS 24 connected to the first MSC 14" (Col. 9, lines 16-18). As interpreted by the examiner, the logical function (signal diversity combining) and handoff are defined by the network (the MSC).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Muszynski as cited in claim 12 to have the logical function defined by the network as further taught by Muszynski in order to combine trigger conditions as a new condition for measurement reporting by the mobile station.

As to claim 15, the Muszynski reference further discloses that a first combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to active base stations having an active link with the mobile station, a second combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to candidate base stations not having an active link with the

mobile station, and at the mobile station, the first combination is used for radio signals from or to active base stations and the second combination is used for radio signals from or to candidate base stations (see Col. 10, lines 55-64; Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen as cited in claim 1 to comprise a first combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to active base stations having an active link with the mobile station, a second combination of the first and second sets of trigger conditions and the logical function are defined to be used for radio signals from or to candidate base stations not having an active link with the mobile station, and at the mobile station, the first combination is used for radio signals from or to active base stations and the second combination is used for radio signals from or to candidate base stations. One would have been motivated to make such a modification in view of the suggestion in Muszynski to set up trigger conditions for a soft handoff from an active base station to a candidate base station.

As to claim 16, the Muszynski reference further discloses the step of creating an active link between the mobile station and a candidate base station not having an active link with the mobile station when the network receives from the mobile station a measurement report triggered by that candidate base station (see Col. 9, lines 15-58; Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Muszynski as cited in claim 15 to comprise the step of creating an active link between the mobile station and a candidate base station not having an active link with the mobile station when the network receives from the

mobile station a measurement report triggered by that candidate base station as further taught by Muszynski in order to initiate a soft handoff of the mobile station from the active base station to the candidate base station.

As to claim 17, the Muszynski reference further discloses the step of deleting an active link between the mobile station and a base station when the network receives from the mobile station a measurement report triggered by that active base station (see Col. 9, line 66 to Col. 10 line 5; Figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Cullen-Kondo-Muszynski as cited in claim 15 to comprise the step of deleting an active link between the mobile station and a base station when the network receives from the mobile station a measurement report triggered by that active base station as further taught by Muszynski in order to complete a soft handoff of the mobile station from the active base station to the candidate base station.

Response to Arguments

1. Applicant's arguments with respect to claims 1-37 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bernstein et al. (US 6,252,861 B1) disclose a method of generating a trigger metric in a cellular handoff system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Bhattacharya whose telephone number is (703) 605-1171. The examiner can normally be reached on weekdays 8:30 a.m. to 6:00 p.m., first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (703) 305-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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sb

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PATENT EXAMINER